Claims:

1. A gateway for connecting a public network to an internal network, the gateway comprising:

a control unit for controlling transmission of incoming and/or outgoing data between a remote device in the public network and at least one internal device in the internal network;

a public port connected to the public network; and

an internal port connected to the internal network;

a storage unit storing a list of public key identifiers and respectively associated internal network addresses of internal devices; and in that

the control unit is adapted for identifying a destination of the incoming data, which are addressed to a public network address of the gateway, by determining an internal network address of the internal device based on public key information included in the incoming data and the list of public key identifiers and associated internal network addresses.

2. The gateway according to claim 1, wherein the public key information in the incoming data includes the public key identifier or allows to determine the public key identifier.

3. The gateway according to claim 1 or 2 further comprising an encryption/decryption unit for decrypting the incoming data and/or encrypting the outgoing data.

4. The gateway according to one of claims 1 to 3 further comprising an authentication unit for verifying the authenticity of transmitted data, an internal device, the remote device and/or used keys.

5. The gateway according to one of claims 1 to 4, wherein the control unit is adapted to provide a connection path for a two-way communication between the remote device and an internal device.

6. The gateway according to one of claims 1 to 5 further comprising an access control unit for determining whether the incoming or the outgoing data may be transmitted according to predefined access control rules.

7. The gateway according to one of claims 1 to 6, wherein said gateway forwards incoming data to another gateway.

8. The gateway according to one of claims 1 to 7, wherein said gateway forwards at least a part of received incoming data to another gateway and forwards at least a part of said incoming data to an internal device of said internal network.

9. The gateway according to one of claims 1 to 7, wherein said gateway forwards different parts of incoming data to different gateways.

10. The gateway according to one of claims 7 to 9, wherein received data and/or different parts of the incoming data are respectively encrypted and/or decrypted by the encryption/decryption unit.

11. The gateway according to one of claims 8 to 10, wherein different parts of incoming data are separately encrypted and/or decrypted by the encryption/decryption unit, whereby if the different parts are forwarded to different recipients, the different outgoing data parts are encrypted independently for the respective recipients.

12. The gateway according to one of claims 7 to 11, wherein a public key identifier is removed form incoming data or at least from a part thereof, and/or data relating to the verification of the authenticity of at least one of the transmitted data, an internal device, the remote device and used keys is removed from said incoming data or at least from a part thereof.

13. The gateway according to one of claims 7 to 12, wherein another public key identifier is associated with or included to incoming data or at least a part thereof,

and/or data relating to the verification of the authenticity of at least one of the transmitted data, an internal device, the remote device and used keys is associated with or included to said incoming data or at least a part thereof.

14. A system comprising the gateway according to one of claims 1 to 12 and a remote device addressing data intended for an internal device of the internal network of the gateway to the public network address of the gateway.

15. The system according to claim 14, wherein the remote device stores a plurality of gateway addresses for the destination and selects the public network address of the gateway from the list of gateway addresses in accordance with predefined first gateway determination rules.

16. The system according to claim 14 or 15 further comprising a public key information server providing the public network address of the destination's gateway as a destination address upon request.

17. The system according to one of claims 14 to 16, wherein a public key information server stores a plurality of gateway addresses for at least one destination and selects the public network address of the gateway from the list of gateway addresses in accordance with second predefined rules.

18. The system according to claim 17, wherein said second predefined rules for selecting the public network addresses of the gateway comprise at least one of:

selecting said public network addresses based on a public key that is identified or provided to said public key information server;

selecting said public network addresses based on the authenticity of said data;

selecting said public network addresses based on the verified integrity of said data;

selecting said public network addresses based on the authenticity of the remote device requesting said selecting of a public network address of the gateway;

selecting said public network addresses based on the authenticity of the intended destination/internal device and/or the authenticity of a public key that is identified or provided to said public key information server of said intended destination/internal device.

19. The system according to claim 18, wherein said authenticity and/or integrity is determined and/or has to be verified by said public key information server.

20. A public key server comprising:

storage means for storing information in regard to a public key;

a public key request interface for receiving a request for public key information stored in said public key information storage means and transmitting the requested information to a requesting device in response thereto; wherein

said storage means stores a public network address of a gateway as a destination address of data to be transmitted to a recipient, for gateways identifying the recipient by means of a public key identifier included in the transmitted data and forwarding the data to the recipient; and

said public key request interface is adapted to transmit said stored public network gateway address to the requesting device.

21. A method for transmitting incoming and/or outgoing data between a remote device in a public network and an internal device in an internal network, the method performed in a gateway of the internal device comprising:

transmitting the data between the remote device and the gateway of the internal device;

forwarding the incoming data from the gateway to the internal device;

storing a list of public key identifiers and associated internal network addresses; and

identifying a destination of the incoming data, which are addressed to a public network address of the gateway, by determining an internal network address of the internal device based on public key information included in the incoming data and the stored list of public key identifiers and associated internal network addresses.